**Category**  
Neurodevelopment

**Project title**  
Longitudinal changes in brain organisation in childhood

**Associated Researcher(s)**  
Duncan Astle

**Project details**  
Can we build simple mathematical models that capture longitudinal changes in the developing brain? The human brain has a characteristic organisation, including hallmarks like heavily connected hub regions. How and when does this organisation emerge, and how does it change as children develop? We have collected multiple longitudinal datasets here at the CBU, including the CALM cohort ([https://calm.mrc-cbu.cam.ac.uk/](https://calm.mrc-cbu.cam.ac.uk/)), and now we want to see if we can build simply mathematical models \(^{(1)}\) that capture how brain networks change across two time points spaced 2-5 year apart. By producing models that recapitulate the real changes that appear in observed brains, our aim is to understand the underlying principles that shape development and give rise to the diversity that we see across individuals, including those with neurodevelopmental disorders.

**References and URL(s)**

**URL**  
https://doi.org/10.1038/s41467-021-24430-z